

PTO/SB/106 (8-96)

Approved for use through 9/30/98. OMB 0551-0032

Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Declaration and Power of Attorney For Patent Application

特許出願宣言書及び委任状

Japanese Language Declaration**日本語宣言書**

下記の氏名が発明者として、私は以下の通り宣言します。

As a below named inventor, I hereby declare that:

私の住所、私郵便、国籍は下記の私の氏名の後に記載された通りです。

My residence, post office address and citizenship are as stated next to my name.

下記の名称の発明にに関して請求範囲に記載され、特許出願している発明内容について、私が最初かつ唯一の発明者（下記の氏名が一つの場合）もしくは最初かつ共同発明者であると（下記の名称が複数の場合）信じています。

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

NETWORK SYSTEM WITH DYNAMIC SERVICE**PROFILE UPDATING FUNCTIONS**

上記発明の明細書（下記の欄でx印がついていない場合は、本書に添付）は、

the specification of which is attached hereto unless the following box is checked:

____月____日に提出され、米国出願番号または特許協定条約国際出願番号を_____とし、
(該当する場合) _____に訂正されました。

was filed on _____
as United States Application Number or
PCT International Application Number
and was amended on _____
(if applicable).

私は、特許請求範囲を含む上記訂正後の明細書を検討し、内容を理解していることをここに表明します。

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

私は、連邦規則法典第37編第1条56項に定義されるとおり、特許資格の有無について重要な情報を示す義務があることを認めます。

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Japanese Language Declaration (日本語宣言書)

私は、米国法典第35編119条(a)-(d)項又は365条(b)項に基づき下記の、米国以外の国の少なくとも一ヵ国を指定している特許協力条約365条(a)項に基づく(国際出願、又は外国での特許出願もしくは発明者証の出願についての)外國優先権をここに主張するとともに、優先権を主張している。本出願の前に出願された特許または発明者証の外国出願を以下に、枠内をマークすることで、示しています。

Prior Foreign Application(s)

外国での先行出願

2000-022278

Japan

(Number)
(番号)(Country)
(国名)(Number)
(番号)(Country)
(国名)

私は、第35編米国法典119条(e)項に基いて下記の米国特許出願規定に記載された権利をここに主張いたします。

(Application No.)
(出願番号)(Filing Date)
(出願日)

私は、下記の米国法典第35編120条に基いて下記の米国特許出願に記載された権利、又は米国を指定している特許協力条約365条(c)に基づく権利をここに主張します。また、本出願の各請求範囲の内容が米国法典第35編112条第1項又は特許協力条約で規定された方法で先行する米国特許出願に示されていない限り、その先行米国出願提出日以降で本出願書の日本国内または特許協力条約国提出日までの期間中に入手された、連邦規則法典第37編1系56項で定められた特許資格の有無に関する重要な情報について開示義務があることを認識しています。

(Application No.)
(出願番号)(Filing Date)
(出願日)(Application No.)
(出願番号)(Filing Date)
(出願日)

私は、私自身の知識に基づいて本宣言書中で私が行なう表明が真実であり、かつ私の入手した情報と私の信じるところに基づく表明が全て真実であると信じていること、さらには故意にされた虚偽の表明及びそれと同様の行為は米国法典第18編第1001条に基づき、罰金または拘禁、もしくはその両方により処罰されること、そしてそのような故意による虚偽の声明を行なえば、出願した、又は既に許可された特許の有効性が失われることを認識し、よってここに上記のことごく宣言を致します。

I hereby claim foreign priority under Title 35, United States Code, Section 119 (a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed.

Priority Not Claimed

優先権主張なし

31/01/00

(Day/Month/Year Filed)
(出願年月日)(Day/Month/Year Filed)
(出願年月日)

I hereby claim the benefit under Title 35, United States Code, Section 119(e) of any United States provisional application(s) listed below.

(Application No.)
(出願番号)(Filing Date)
(出願日)

I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s), or 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code Section 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of application.

(Status: Patented, Pending, Abandoned)
(現況: 特許許可済、係属中、放棄済)(Status: Patented, Pending, Abandoned)
(現況: 特許許可済、係属中、放棄済)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Japanese Language Declaration
(日本語宣言書)

委任状： 私は下記の発明者として、本出願に関する一切の手続きを米特許商標局に対して遂行する弁理士または代理人として、下記の者を指名いたします。（弁護士、または代理人の氏名及び登録番号を明記のこと）

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith (list name and registration number)

書類送付先

Aaron B. KARAS, Reg. No. 18,923; Samson HELGOTT, Reg. No. 23,072 and Leonard COOPER Reg. No. 27,625
Send Correspondence to:

HELGOTT & KARAS, P.C.
Empire State Building, 60th Floor
New York, New York 10118
United States of America

直接電話連絡先：（名前及び電話番号）

Direct Telephone Calls to: (name and telephone number)

Halfgott & Karas, P.C.
(212) 643-5000

第一または第一発明者名

Full name of sole or first inventor
Yoichiro IGARASHI

発明者の署名 日付

Inventor's signature *Yoichiro Igashira* Date Dec. 26, 2000

住所

Residence Kawasaki, Japan

国籍

Citizenship Japanese

私書箱

Post Office Address c/o FUJITSU LIMITED, 1-1,

Kamikodanaka 4-chome, Nakahara-ku,
Kawasaki 211-8588 Japan

第二共同発明者

Full name of second joint inventor, if any
Shinya YAMAMURA

第二共同発明者 日付

Second inventor's signature *Shinya Yamamura* Date Dec. 26, 2000

住所

Residence Fukuoka, Japan

国籍

Citizenship Japanese

私書箱

Post Office Address c/o FUJITSU NISHI-NIHON
COMMUNICATION SYSTEMS LIMITED, 2-1,
Momochihama 2-chome, Sawara-ku, Fukuoka-shi,

Fukuoka 814-8588 Japan

（第三以降の共同発明者についても同様に記載し、署名をすること）
(Supply similar information and signature for third and subsequent joint inventors.)

第三共同発明者	Full name of third joint inventor, if any Mitsuaki KAKEMIZU		
第三共同発明者	日付	Third inventor's signature	Date <i>Mitsuki Kakemizu</i> Dec. 26, 2000
住 所	Residence Kawasaki, Japan		
国 籍	Citizenship Japanese		
私書箱	Post Office Address/o FUJITSU LIMITED, 1-1, Kamikodanaka 4-chome, Nakahara-ku, Kawasaki 211-8588, Japan		
第四共同発明者	Full name of fourth joint inventor, if any Kazunori MURATA		
第四共同発明者	日付	Foyrth inventor's signature	Date <i>Kazunori Murata</i> Dec. 26, 2000
住 所	Residence Fukuoka, Japan		
国 籍	Citizenship Japanese		
私書箱	Post Office Address/o FUJITSU NISHI-NIHON COMMUNICATION SYSTEMS LIMITED, 2-1, Momochihama 2-chome, Sawara-ku, Fukuoka-shi, Fukuoka 814-8588 Japan		
第五共同発明者	Full name of fifth joint inventor, if any Masaaki WAKAMOTO		
第五共同発明者	日付	Fifth inventor's signature	Date <i>Masaaki Wakamoto</i> Dec. 26, 2000
住 所	Residence Kawasaki, Japan		
国 籍	Citizenship Japanese		
私書箱	Post Office Address/o FUJITSU LIMITED, 1-1, Kamikodanaka 4-chome, Nakahara-ku, Kawasaki 211-8588, Japan		
第六共同発明者	Full name of sixth joint inventor, if any		
第六共同発明者	日付	Sixth inventor's signature	Date
住 所	Residence		
国 籍	Citizenship		
私書箱	Post Office Address		
(第七以降の共同発明者についても同様に 記載し、署名をすること)		(Supply similar information and signature for seventh and subsequent joint inventors.)	

THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of: **Yoichiro IGARASHI et al.**

Filed : **Concurrently herewith**
For : **NETWORK SYSTEM WITH DYNAMIC.....**
Serial No. : **Concurrently herewith**

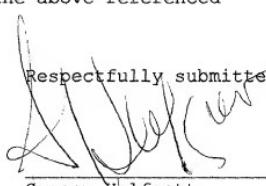
January 12, 2001

Assistant Commissioner of Patents
Washington, D.C. 20231

SUB-POWER OF ATTORNEY

S I R:

I, Samson Helfgott, Reg. No. 23,0723 attorney of record herein, do hereby grant a sub-power of attorney to Linda S. Chan, Reg. No. 42,400, Harris A. Wolin, Reg. No. 39,432, Brian S. Myers, Reg. No. 46,947 and Michael Markowitz, Reg. No. 30,659 to act and sign in my behalf in the above-referenced application.

Respectfully submitted,

Samson Helfgott
Reg. No 23,072

HELFGOTT & KARAS, P.C.
60th FLOOR
EMPIRE STATE BUILDING
NEW YORK, NY 10118
DOCKET NO.: FUJR18.213
BHU:power

Filed Via Express Mail
Rec. No.: EL522394294US
On: January 12, 2001
By: Brendy Lynn Belony
Any fee due as a result of this paper,
not covered by an enclosed check may be
charged on Deposit Acct. No. 08-1634..

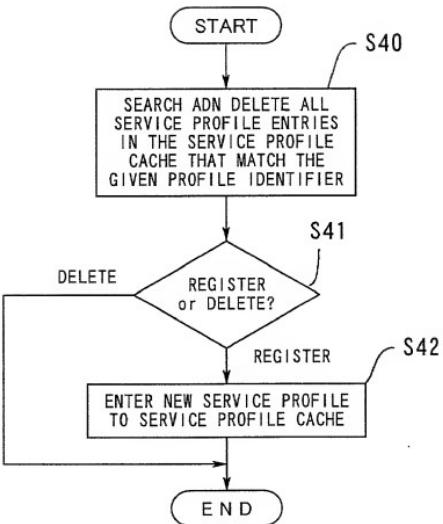


FIG. 24

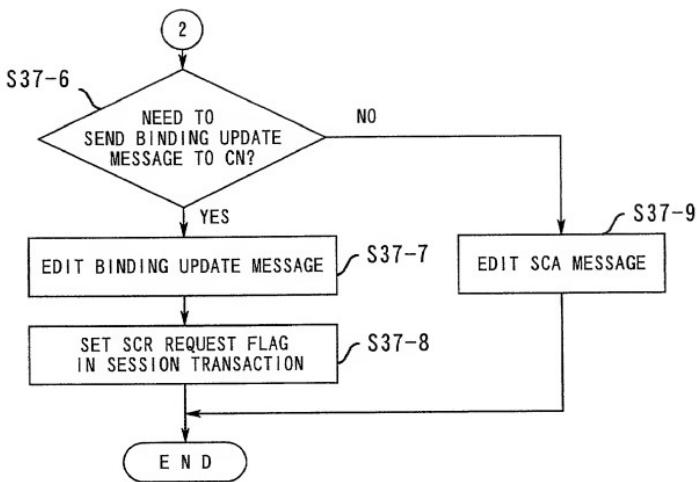


FIG. 23

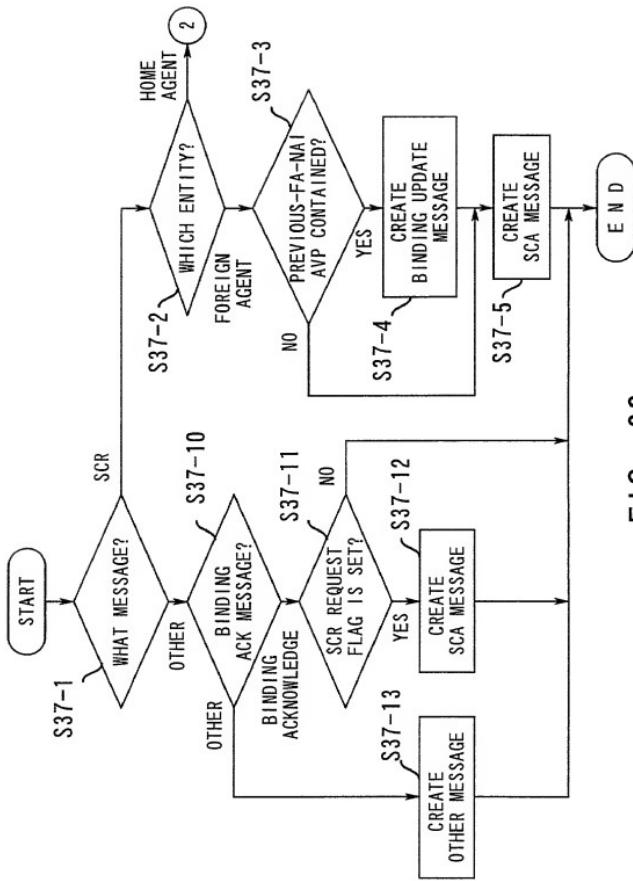


FIG. 22

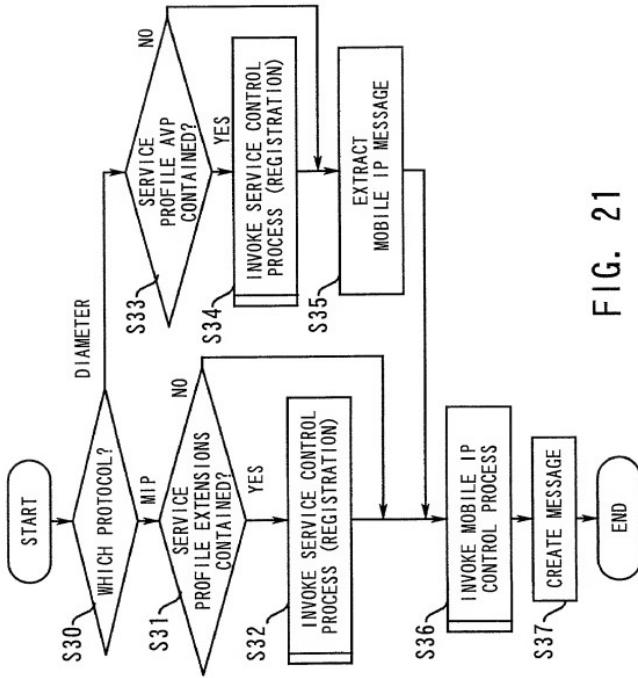


FIG. 21

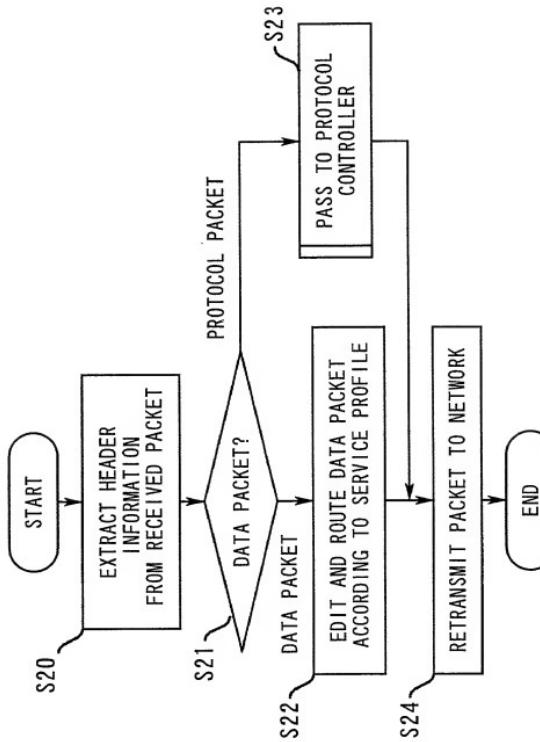


FIG. 20

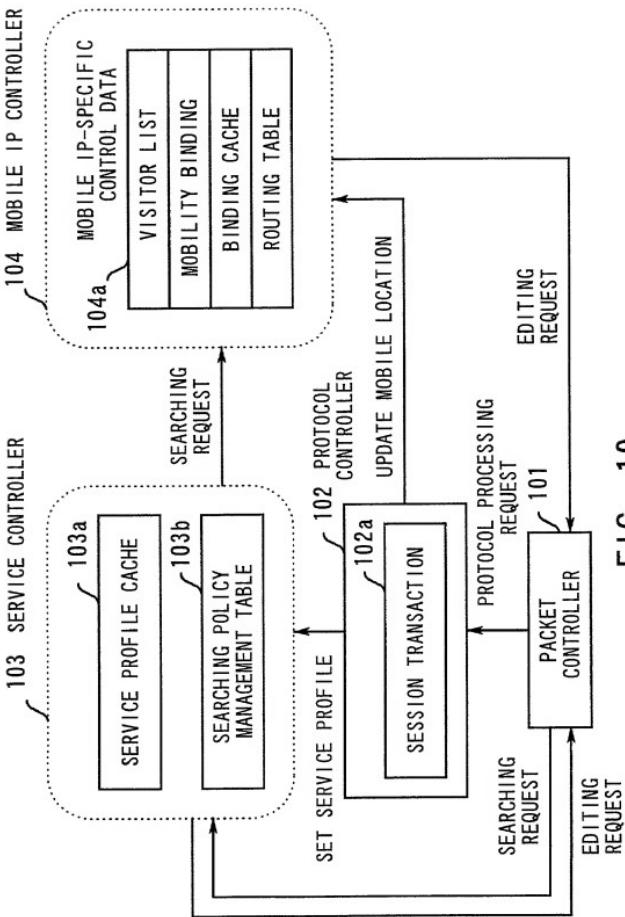


FIG. 19

Control Parameters	Description
Charge	System warns the user when the amount of service charges has exceeded a limit predefined by the user, prompting him/her to decide whether to continue the service.
Time	User may choose a more affordable service which is available only in low-traffic hours. User may choose variable-class service which provides different levels of service depending on the time of day.
Service Class	User may choose variable-class service which provides different levels of service depending on the type of applications, or type of packets, to minimize the usage-based charge.
Roaming Option	User may enable roaming option with additional cost. User may cut the cost by disabling roaming option.

FIG. 18

Item	Description
Flat-rate Accounting (Fixed charge for limited hours, plus additional charge for excess hours)	$\text{Basic Charge} + (\text{Service Class-dependent Hourly Rate}) * (\text{Excess Hours})$
Usage-based Accounting (Proportional to the amount of packets transferred)	Summation of $\lceil (\text{Service Class-dependent Rate}) * (\text{Total Amount of Packets Transferred to/from Edge Node (Foreign Agent)}) \rceil$

FIG. 17

Service Class	Description
Class A	Maximum transmission delay is guaranteed to be within a prescribed tolerance
Class B	In Diffserv, high priority queuing is applied as long as it does not affect Class A traffic. May be divided into several subclasses, depending on Diffserv types
Class C	Best-effort service. Lower priority queuing than Class B.

531

FIG. 16

Item	Description
User NAI	User's Network Access Identifier (NAI)
User Profile	User name, Address, Phone No. etc.
User Authentication Data	Mobile Node-AAA Authentication Key, SPI, User ID, Password
Service Level Agreement (SLA)	Service agreement with customer
Service-specific Profile	Diffserve, Packet Filtering, ANYCAST, Multi Cast, etc

FIG. 15

521

Item	Description
Home Address	Home address assigned to mobile node
Care-of Address of Mobile Node	IP address of foreign agent to which mobile node is currently attached
Correspondent Node with Route Optimization	IP address of correspondent node to which route optimization is being applied
Registration Request Identifier	Identifier used to associate between request and response
Lifetime	Valid Period of Registration Request
Authentication Data	Authentication data used by foreign agent to authenticate requesting mobile node

FIG. 14

520

Item	Description
IP Source Address (Home Address)	Home address assigned to mobile node. Notified by registration request or AMA message
Link Layer Source Address of Mobile Node	Link layer (MAC) address of mobile node
UDP Source Port	UDP Source port of mobile node
Home Agent Address	Address of home agent. Provided in registration request or AMA message
Registration Request Identifier	Identifier used to associate between request and response
Lifetime	Valid period of registration request
Authentication Data	Authentication data used by foreign agent to authenticate requesting mobile node

FIG. 13

Item	Description
Session ID	<NAI of Mobile Node><32-bit Value><Optional Value>
Session Timer	Remaining lifetime of this transaction
Mobility Binding	Pointer to mobility binding
SCR Request Flag	Flag indicating that service profile is being updated in correspondent node
SCR Requester Address	IP address of the entity requesting SCR

514

FIG. 12

513

Item	Description
Session ID	<NAI of Mobile Node><32-bit Value><Optional Value>
Home Agent Address	IP address of home agent allocated by AAAH
HA-managing AAAF Address	IP address of AAAF that is allowed by AAAH to allocate home agent
Current AAAF Address	IP address of AAAF requesting AMR
Previous AAAF Address	IP address of previously used AAAF
Address Proxy Address	IP address of address proxy in ANYCAST service
Security Information	Authentication data for validate association between this AAAH and other entities (HA, AAAF)
Session Timer	Remaining lifetime of this transaction
Address Proxy Server Address	IP address of address proxy server
Foreign Agent Service Profile	See FIG. 3
Home Agent Service Profile	See FIG. 3
Current State	Waiting, HA Requested, AMA in Process, HA Change Requested, FA Change Requested

FIG. 11

Item	Description
Session ID	<NAI of Mobile Node><32-bit Value><Optional Value>
AAAH Address	IP address of AAAH identified by mobile node NAI
Home Agent Address	IP address of home agent allocated by AAAF
Previous Foreign Agent NAI	NAI of previous foreign agent to which the mobile node was attached
Current Foreign Agent NAI	NAI of foreign agent to which the mobile node is currently attached
SCR Requester Address	IP address of AAAH that is requesting SCR
Security Information	Authentication data for validate association between this AAAF and other entities (FA, AAAH, HA allocated by AAAH)
Session Timer	Remaining lifetime of this transaction
Foreign Agent Service Profile	See FIG. 3
Home Agent Service Profile	See FIG. 3
Current State	Waiting, HA requested, AMA in process, HA Change Requested, FA Change Requested

FIG. 10

Item	Description
Session ID	<NAI of Mobile Node><32-bit Value><Optional Value>
Session Timer	Remaining lifetime of this transaction

FIG. 9

Search Order	Cache Class	Cache Search Result	Individual Control Data Search Result	Next Action
1	ASPCsrc	Hit	Hit	Normal end
		No Hit	No Hit	Abnormal end
2	NSPCsrc	Hit	Hit	Search NSPCsrc
		No Hit	No Hit	Normal end
3	ASPCdst	Hit	Hit	Search ASPCdst
		No Hit	No Hit	Normal end
4	NSPCdst	Hit	Hit	Search NSPCdst
		No Hit	No Hit	Normal end
5	NDSP	Hit	Hit	Search NDSPdst
		No Hit	No Hit	Use NDSP

502

FIG. 8

			Description
Service Profile Cache	Source SPC (NSPsrc)	SPC	A collection of service profiles to be used mainly for user-independent, common services. Indexed by source address information of data packets. Created by a mobility agent at the time of initial set-up, based on static information stored in hard drives and other storage devices of network equipment.
	Source Default SP (NDSPsrc)		Service profile applied when there is a hit in NSPsrc, but no hit in individual control tables.
	Node-specific SPC (NSPC)		A collection of service profiles to be used mainly for user-independent, common services. Indexed by destination address information of data packets. Created by a mobility agent at the time of initial set-up, based on static information stored in hard drives and other storage devices of network equipment.
	Destination SPC (NSPCdst)		Service profile applied when there is a hit in NSPCdst, but no hit in individual control tables.
	Default SP (NDSP)		Default service profile used when no hit is found. For retrieval of a network device-specific control table (routing table).
	Source SPC (ASPCsrc)	AAA Communication (ASPC)	A collection of user-specific service profiles. Indexed by source address information of data packets that are sent from AAA systems when a mobile node logs in to the network.
	Destination SPC (ASPCdst)		A collection of user-specific service profiles. Indexed by destination address information of data packets that are sent from AAA systems when a mobile node logs in to the network.

FIG. 7

	Data Items	Detailed Data Items	Description
10-1	Profile Identifier	Session Identifier Profile Number	Indicate session type Uniquely assigned to each session
10-2	Packet Extraction Parameters	Source Address Source Port No. Destination Address Destination Port No.	Packet filtering rules
10-3	Routine/ Packet Editing Parameters	Encapsulation (Encryption) Method Routing Address (Multiple Entries Allowed) Type of Service (TOS)	How to encapsulate packets to be routed IP address of the next node TOS field value to be set to IP header
10-4	Individual Control Data	Service Control Command Service Control Type	Request for decapsulation Designate which control table to search - service profile cache - binding cache - MIP home (mobility binding) - MIP foreign (visitor list) - ANYCAST (extended visitor list) - routing table Control Data Identifier Pointer to an intended part of the table

FIG. 6

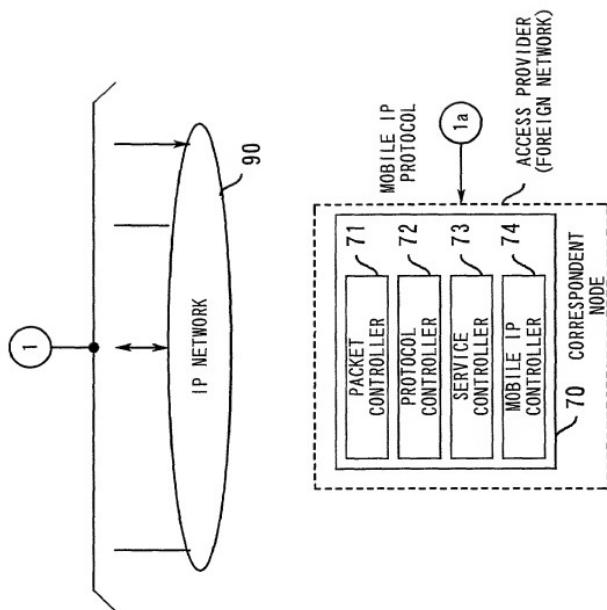
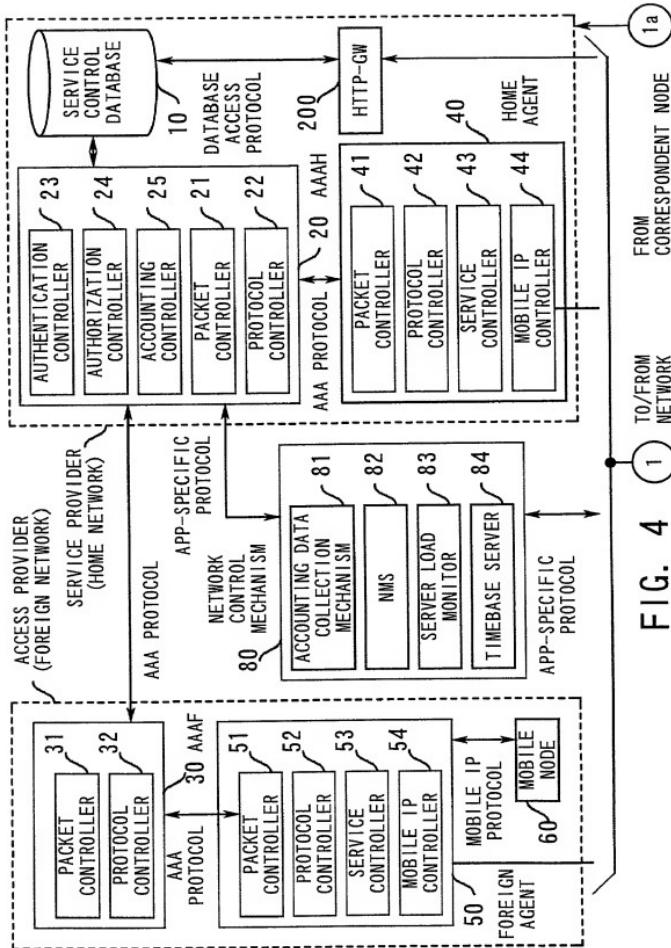


FIG. 5



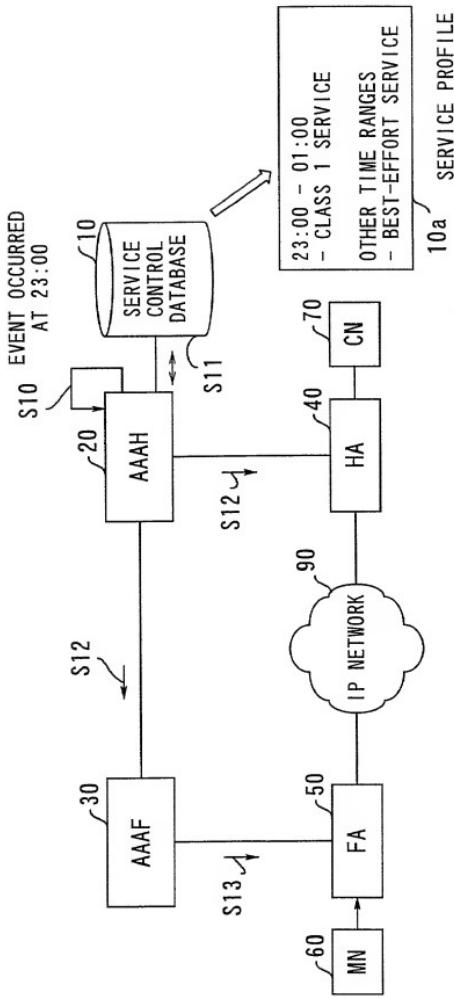


FIG. 3

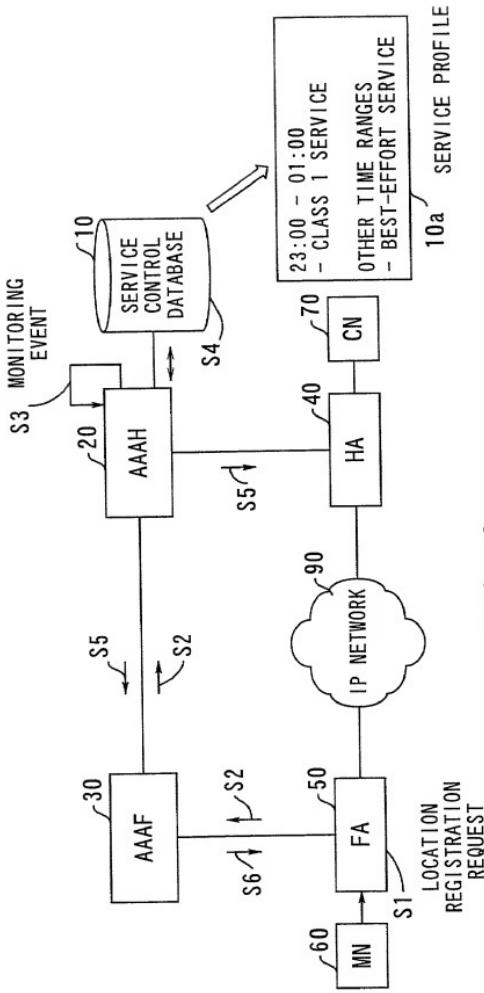


FIG. 2

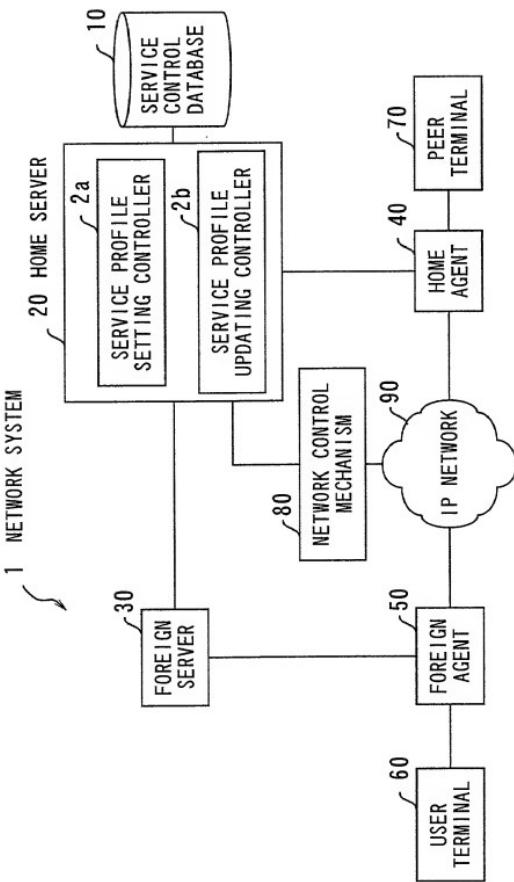
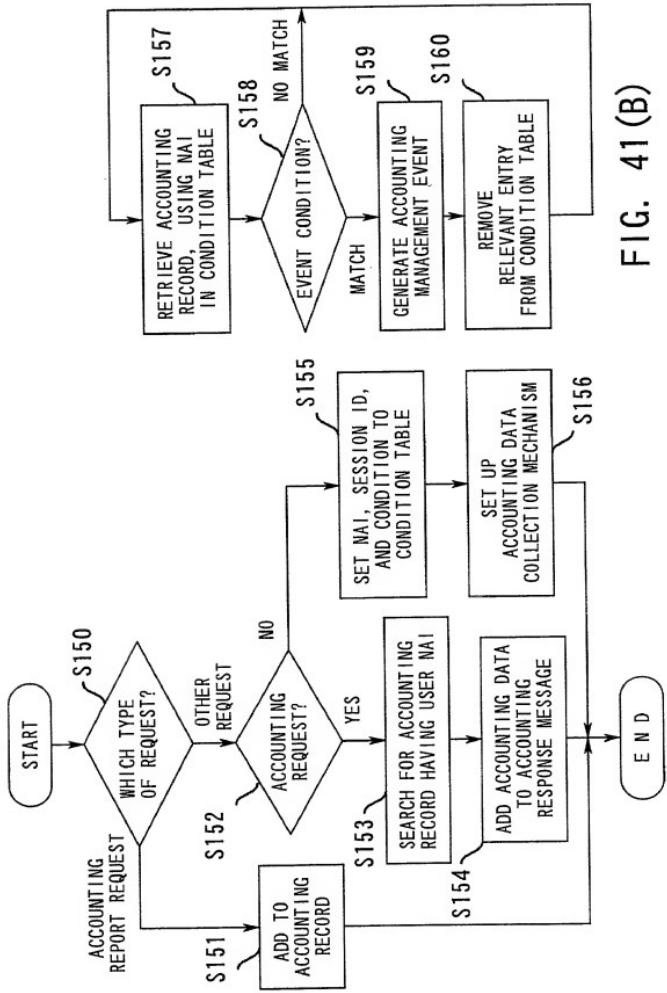


FIG. 1



Message Received	Action to be Invoked	Criteria	Destination	Message to send
AMR	w/o Home-Agent-Address AVP with Home-Agent-Address AVP	Current AAAF	AMA	AMA
	(Mobile node has roamed into different AAAF domain) and (Home agent has been allocated by previous AAAF)	Home Agent	HAR	
		Previous AAAF	AMR	
AMA	Forward AMA message	Current AAAF	AMA	AMA
HAA	Set Home Agent address to session transaction	Current AAAF	AMA	AMA
SCA	Forward SCA message	in "HA Change Requested" state	Current AAAF	SCR
SFR	Forward SFR message, and terminate session transaction	w/o Home Agent allocation	Requesting entity	SFA
SFA	Terminate session transaction	with Home Agent allocation	Home Agent	SFR
		in "HA Release Requested" state	Current AAAF	SFR

NAI	Session ID	Condition
userA@domain1	<userA@domain1><10.11.22.33.><'19991029013445'>	if \$100 ≥
userB@domain1	<userB@domain1><10.11.22.33.><'19991029003445'>	if \$150 ≥
:	:	:
userZ@domain1	<userZ@domain1><10.12.23.4><'19991029091000'>	if \$50 ≥

701~

FIG. 43

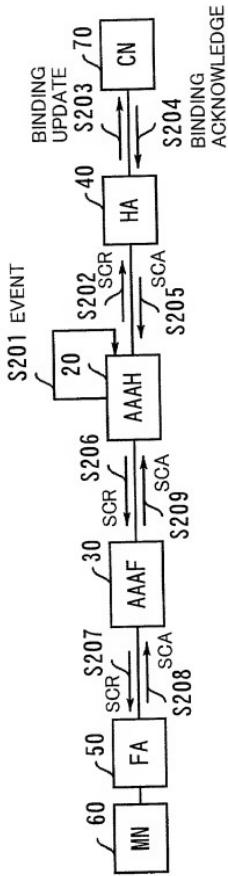


FIG. 44

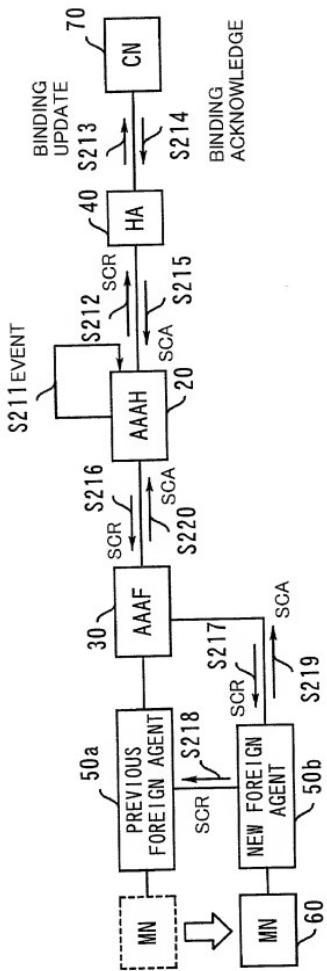


FIG. 45

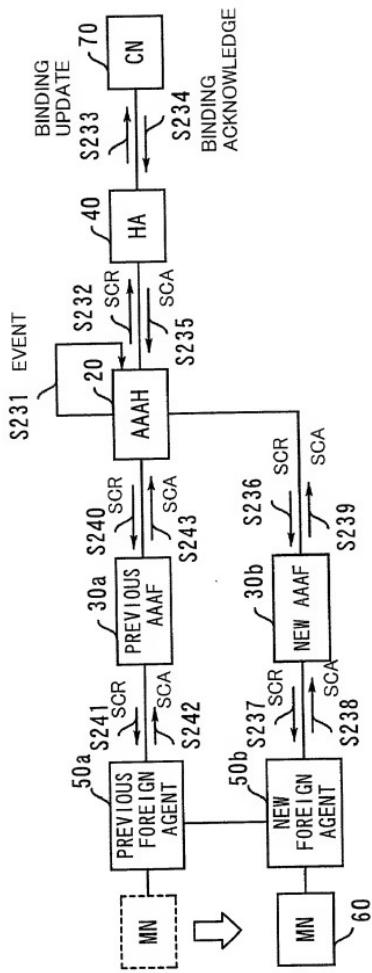


FIG. 46

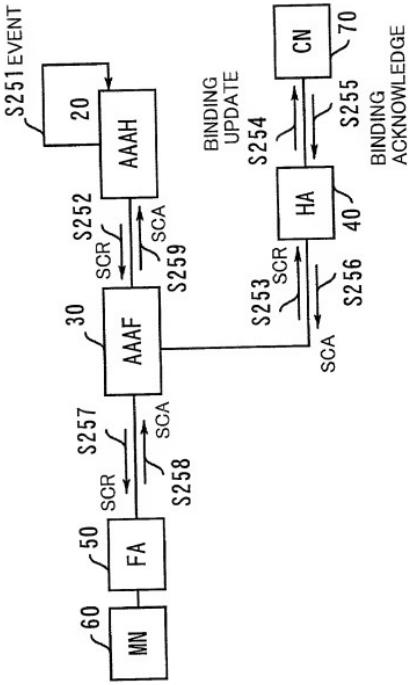
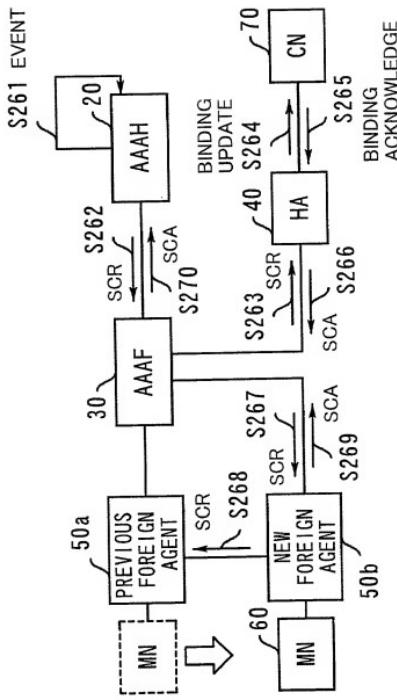


FIG. 47

FIG. 48



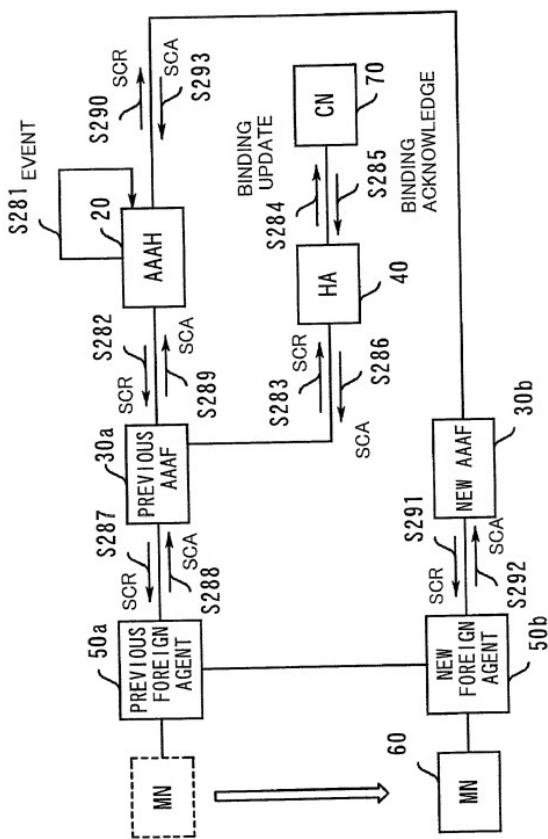


FIG. 49

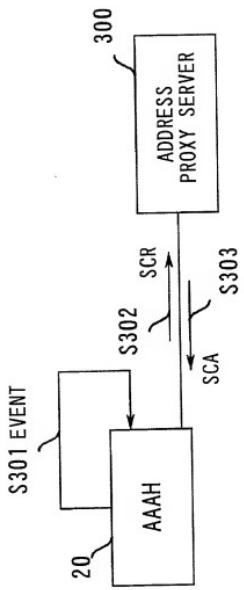


FIG. 50

	Service Type	Diffserv
Additional Information 1	Diffserv Activation Policy	*
	Service Class	Class C
	Direction	Upstream
	IP Address	*
Additional Information 2	Port No.	*
	Diffserv Activation Policy	Time : 23:00 to 08:00
	Service Class	Class B
	Direction	Downstream
Additional Information 3	IP Address	*
	Port No.	*
	Diffserv Activation Policy	Time : 08:00 to 23:00
	Service Class	Class C
	Direction	Downstream
	IP Address	*
	Port No.	*

FIG. 51

Service Type		Diffserv	
Additional Parameters 1	Diffserv Activation Policy	*	
	Service Class	Class C	
	Direction	Upstream	
	IP Address	*	
Additional Parameters 2	Port No.	*	
	Diffserv Activation Policy	*	
	Service Class	Class B	
	Direction	Downstream	
Additional Parameters 3	IP Address	*	
	Port No.	*	
	Diffserv Activation Policy	Amount of Charges $\geq \$100$	
	Service Class	Class C	
	Direction	Downstream	
	IP Address	*	
	Port No.	*	

FIG. 52

Service Type		Packet Filtering
Filter Activation Policy		(IP Address) AND (Time 08:00 to 21:00)
Additional Parameters	IP Address	XXX.XXX.*.*
	Port No.	*

FIG. 53

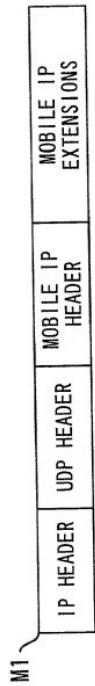


FIG. 54

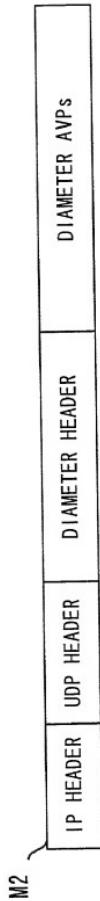


FIG. 55

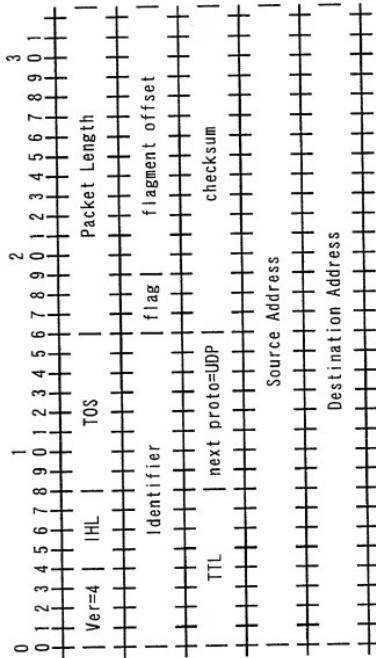


FIG. 56